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10/584,177

06/23/2006

Yuichi Shibazaki

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EXAMINER

JONES, JAMES

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<i>Office Action Summary</i>	Application No. 10/584,177	Applicant(s) SHIBAZAKI, YUICHI	
	Examiner JAMES C. JONES	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on amendment filed 12/10/2008.  
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-13, 15-17 and 20-24 is/are rejected.  
7) ☒ Claim(s) 14, 18 and 19 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/25/2009</u>   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Information Disclosure Statement*

The information disclosure statement (IDS) submitted on 2/25/2009 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Shibazaki (20020163741) hereafter Shibazaki.

Shibazaki discloses the limitations therein including the following:

Regarding claim 1 discloses in figs. 45 and 46 an optical element holding device for holding an optical element, the optical element holding device comprising: a frame member (124); a holding member (122) arranged in the frame member and configured to hold the optical element (38); a displacement portion (143) connected to the frame member (124) and configured to be displaced in a direction intersecting with an optical axis of the optical element (38) by a driving force applied from outside the frame member (par. [0236]-[0240]); and a transmission portion (146 or 126) connected to the holding member (122) and the displacement portion (143), and configured to transmit displacement of the displacement portion to the holding member, wherein the

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transmission portion displaces the holding member in a direction substantially parallel to the optical axis of the optical element (fig. 45 and 36, par. [0236]-[0240]).

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 15-17 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omura et al (2040070852) hereafter Omura in view of Shibazaki (20020163741) hereafter Shibazaki.

Regarding claims 1 and 21 '852 discloses an optical element holding device for holding an optical element, the optical element holding device (fig. 12b, 14a, 14b) comprising: a frame member ("342" as the "frame member"); a holding member (14a, 14b "340" as the "holding member"), arranged in the frame member and configured to hold the optical element (14a, 14b); a displacement portion configured to be displaced in a direction intersecting with an optical axis of the optical element by a driving force applied from outside the frame member (fig. 14a, 14b, par. [0153]-[0162] "341" as the "displacement portion"); and a transmission portion configured to transmit displacement of the displacement portion to the holding member, wherein the transmission portion displaces the holding member in a direction substantially parallel to the optical axis of the optical element (fig. 14a, 14b "343" as the "transmission portion") but does not specifically disclose the displacement portion connected to the frame member and the

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transmission portion connected to the holding member and the displacement portion.

Shibazaki teaches that in an optical device having lenses and piezoelectric actuators (fig. 14a) that it is desirable to have the displacement portion (fig. 46, "143" as the "displacement portion") connected to the frame member (fig. 46, "124" as the "frame member") and the transmission portion connected to the holding member and the displacement portion (fig. 46, "146" or "126" as the "transmission portion" "122" as the "holding member") for the purpose of accurately positioning an optical element.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have the displacement portion of Omura connected to the frame member and the transmission portion of Omura connected to the holding member and the displacement portion as modified by Shibazaki since Shibazaki teaches that in an optical device having lenses and piezoelectric actuators that it is desirable to have the displacement portion connected to the frame member and the transmission portion connected to the holding member and the displacement portion for the purpose of accurately positioning an optical element.

Regarding claim 2 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses wherein the displacement portion is displaced within a plane that is orthogonal to the optical axis of the optical element (fig. 14a, 14b, par. [0109]-[0110][0153]).

Regarding claim 3 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses a driving member, attached to the frame member and configured to generate the driving force, wherein the driving member urges the

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displacement portion in a direction intersecting with the optical axis of the optical element (fig. 6, 14a, 14b, par. [0109]-[0110][0152]-[0166]).

Regarding claim 4 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses further comprising: a driving member, attached to the frame member and configured to generate the driving force, wherein the frame member is annular and has a center, and the driving member urges the displacement portion toward the center of the frame member (par. [0047][0148][0153]-[0162]).

Regarding claim 5 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses, wherein the driving member includes: a driving element (fig. 14a, 14b); and a housing, connected to the displacement portion and configured to accommodate the driving element (14a, 14b).

Regarding claim 6 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses wherein the housing includes a coupling portion configured to transmit a driving force generated by the driving element to the displacement portion (fig. 13b, 14a, 14b).

Regarding claim 7 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses wherein the driving member includes a rough adjustment mechanism that roughly adjusts the position of the holding member, and a fine movement mechanism that finely adjusts the position of the holding member (par. [0146]-[0156]).

Regarding claim 8 '852 Omura and Shibazaki disclose and teach as set forth

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above and Omura further discloses, wherein the fine movement mechanism includes a piezoelectric element (par. [0161]).

Regarding claim 9 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses a guiding portion configured to guide the displacement portion in a manner that the displacement portion is displaced in a limited direction (fig. 14a, 14b).

Regarding claim 10 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses an urging member, arranged between the displacement portion and the frame member, and configured to urge the displacement portion toward the frame member (fig. 14a, 14b).

Regarding claim 11 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses, wherein the transmission portion is a rod having one end, connected to the holding member in a manner rotatable and tiltable in any direction, and another end, connected to the displacement portion in a manner rotatable and tiltable in any direction, with the one end and the other end of the rod being connected by an axis tilted relative to a direction in which the displacement portion is displaced (fig. 14a, 14b, par. [0161]-[0166]).

Regarding claim 12 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses, wherein the displacement portion is one of three displacement portions that are arranged on the frame member, and the transmission portion is one of three transmission portions associated with the displacement portions, with each transmission portion including two rods connected to the associated

displacement portion (par. [0161]-[0166]).

Regarding claim 13 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses, a vibration attenuating mechanism arranged between the frame member and the displacement portion and configured to attenuate vibration of the displacement portion generated by the driving force (par. [0131]).

Regarding claim 15 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses, wherein at least two of the frame member, the displacement portion, the guide portion, and the transmission portion are monolithically formed as a single structure body (fig. 14a, 14b).

Regarding claim 16 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses, wherein the single structure body is formed through engraving machining and includes a connecting portion connecting the at least two of the frame member, the displacement portion, the guide portion, and the transmission portion to one another (fig. 14a, 14b).

Regarding claim 17 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses, wherein the connecting portion is formed by a plurality of connecting portions connecting in a relatively movable manner the frame member and the guide portion, the displacement portion and the guide portion, the displacement portion and the transmission portion, and the transmission portion and the holding member (fig. 14a, 14b).

Regarding claim 20 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses a seal configured to isolate an inner space of the frame



member from the outer side of the frame member and to hermetically seal the inner space of the frame member (fig. 14b).

Regarding claim 22 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses wherein the optical element is one of a plurality of optical elements constituting a projection optical system configured to project an image of a predetermined pattern formed on a mask onto a substrate (fig. 8).

Regarding claim 23 '852 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses a mask on which the image of the predetermined pattern is formed; and the barrel according to claim 22 that transfers the image onto the substrate (abstract, par. [0001]).

Regarding claim 24 Omura and Shibazaki disclose and teach as set forth above and Omura further discloses a lithography process including exposure performed with the exposure apparatus according to claim 23 (abstract, par. [0001]).

#### *Allowable Subject Matter*

Claims 14 and 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: with respect to the allowable claims, none of the prior art either alone or in combination disclose or teach of the claimed combination of limitations to warrant a rejection under 35 USC 102 or 103. Specifically, in reference to claim 14, none of the prior art either alone or in combination disclose or teach of the claimed optical element

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holding device specifically including, as the distinguishing features in combination with the other limitations the claimed “wherein the vibration attenuating mechanism includes a friction member fixed to one of the frame member and the displacement portion and slidably contacting the other one of the frame member and the displacement portion”.

Regarding claim 18 (and its dependent), none of the prior art either alone or in combination disclose or teach of the claimed optical element holding device specifically including, as the distinguishing features in combination with the other limitations the claimed “a displacement detection mechanism including a scale mounted on the holding member and a monitoring portion arranged on the frame member and configured to monitor a position of the scale”.

### *Response to Arguments*

Applicant's arguments with respect to claims 1-13, 15-17 and 20-24 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES C. JONES whose telephone number is (571)270-1278. The examiner can normally be reached on Monday thru Friday, 8 a.m. to 5 p.m. est. time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on (571) 272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James C. Jones/

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Examiner, Art Unit 2873

2/23/2009

/Jordan M. Schwartz/

Primary Examiner, Art Unit 2873